MISSOURI OIL AND GAS COUNCIL

Form OGC - 3

APPLICATION FOR PERMIT TO DRILL, DEEPEN OR PLUG BACK

APPLICATION TO DRILL ☒ DEEPEN ☐ PLUG BACK ☐

NAME OF COMPANY OR OPERATOR DNR - Geol Survey DATE Sept 77

Box 250 (Address) Rolla (City) Mo (State)

DESCRIPTION OF WELL AND LEASE

Name of lease	Well number	Elevation (ground)
ERDA TS	36	893

WELL LOCATION (give footage from section lines)

17 ft. from (N) (S) sec. line 2710 ft. from (E) (W) sec. line

WELL LOCATION Section 8 Township 33N Range 31W County Barton

Nearest distance from proposed location to property or lease line: _____ feet

Distance from proposed location to nearest drilling, completed or applied – for well on the same lease: NA feet

Proposed depth:	Rotary or Cable tools	Approx. date work will start
175	Rotary (Air)	

Number of acres in lease: NA

Number of wells on lease, including this well, completed in or drilling to this reservoir: _____

Number of abandoned wells on lease: _____

If lease, purchased with one or more wells drilled, from whom purchased: Name NA Address _____

No. of Wells: producing _____ inactive _____ abandoned _____

Status of Bond NA ☐ ON FILE ☐ ATTACHED

Single Well ☐ Amt. _____ Blanket Bond ☐ Amt. _____

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone) use back of form if needed.

Strat Test

Proposed casing program:

amt.	size	wt./ft.	cem.
		None	

Approved casing – To be filled in by State Geologist

amt.	size	wt./ft.	cem.

I, the undersigned, state that I am the _____ of the _____ (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

Signature _____

Permit Number: 20028

Approval Date: Sept 1977

Approved By: Wallace B Howe

☒ SAMPLES REQUIRED

☐ SAMPLES NOT REQUIRED

WATER SAMPLES REQUIRED @:

_____

_____

Note: This Permit not transferable to any other person or to any other location.

Remit two copies to: Missouri Oil and Gas Council P.O. Box 250 Rolla, Mo. 65401

One will be returned.

Approval of this permit by the Oil and Gas Council does not constitute endorsement of the geologic merits of the proposed well nor endorsement of the qualifications of the permittee.

MISSOURI OIL AND GAS COUNCIL

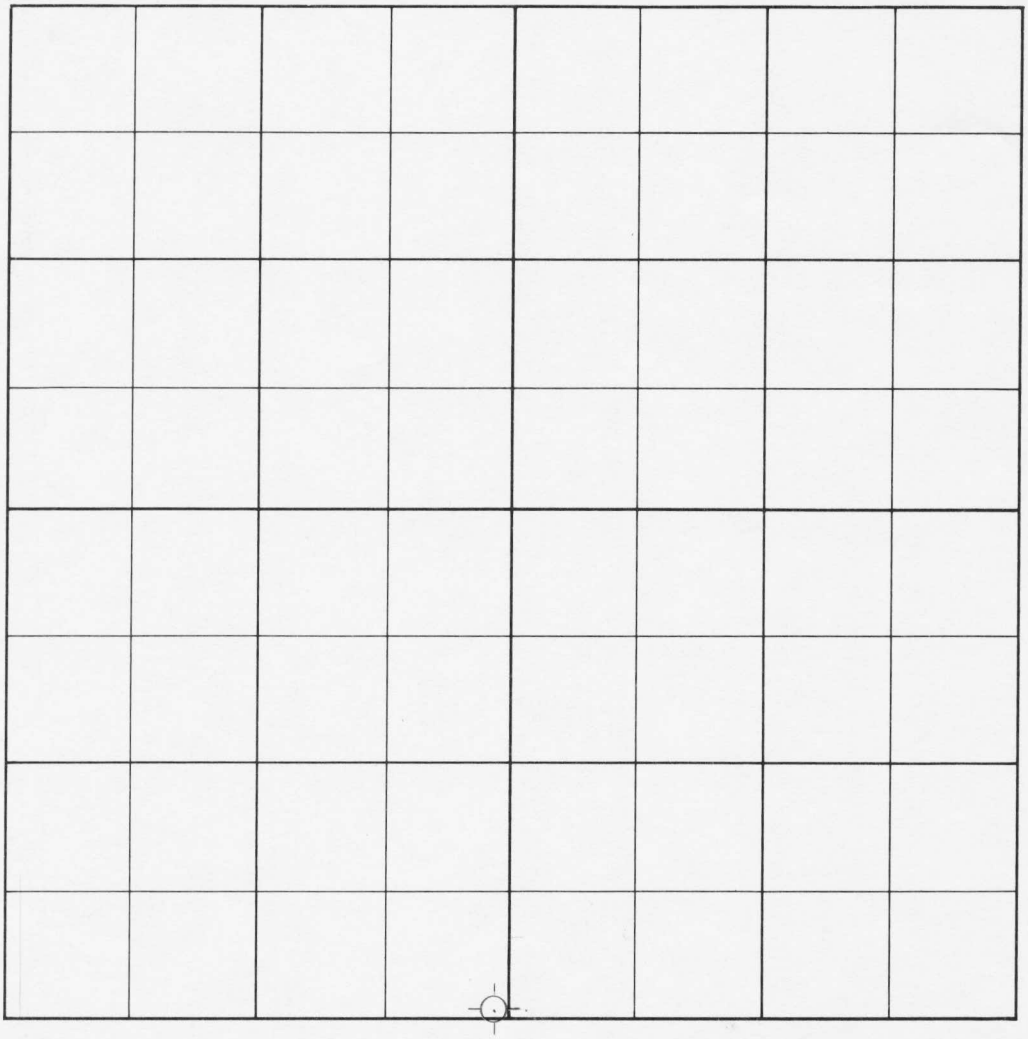
Form OGC - 4

WELL LOCATION PLAT

Owner: DNR - Geol Survey

Lease Name: ERDA-TS NO. 36 County, Barton

17 feet from (N) - (S) line and 2710 feet from (E) - (W) line of Sec. 8 Twp. 33N Range 31W



SCALE
1" = 1000'

REMARKS: _____

INSTRUCTIONS

On the above plat, show distance of the proposed well from the two nearest lease and section lines, and from the nearest well on the same lease completed in or drilling to the same reservoir. If the location requested is not in conformance with the applicable well-spacing rules, show all off-setting wells to the proposed well. Do not confuse survey lines with lease lines. See rule 7 - 3 (b) for survey requirements.

(SEAL)

Remit two copies to: Missouri Oil and Gas Council
P.O. Box 250 Rolla, Mo. 65401
One will be returned.

_____

Registered Land Surveyor

TEST BORING LOG

Project E. R. D. A.

Sec. 8, T. 33N., R. 31W.

Address

City & State

Boring No. 36 Sheet 1 of 3

Surface Elevation 893' Offset

Date Started 9/27/77 Completed

Driller E. Connor Rig FAD

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
0.0'	1.0'	WB				Topsoil
1.0'	4.2'	WB				Red brown silty clay, w/some sand, moist, stif
4.2'	8.0'	WB				Brown sandstone, w/weathered seams
8.0'	14.0'	WB				Red shale, moist, med. hard
14.0'	30.0'	WB				Gray sandstone, w/soft layers
30.0 '	38.0'	CW1			8.0'	Light gray sandy shale, hard 16 pcs. 1 to 1.8
38.0'	40.0'	CW1			2.0'	Gray sandy shale, 7 pcs.
40.0 '	41.7'	CW2			1.7'	Same
41.7'	41.8'	CW2			0.1'	Black coal, broken
41.8'	43.1'	CW2			1.3'	Gray shale, med. hard 4 pcs.
43.1'	50.0'	CW2			6.9'	Gray sandstone, 10 pcs.
50.0'	60.0'	CW3			10.0'	Gray sandstone, 20 pcs. 1"-2.0'
60.0'	70.0'	CW4			10.0'	Gray sandstone, 21 pcs. 1"-1'9"
70.0'	79.6'	CW5			9.6'	Gray sandstone, 20 pieces
79.6'	80.0'	CW5			0.4'	Gray sandstone w/shale seams 1 piece
80.0'	81.6'	CW6			1.6'	Gray sandstone, 4 pieces

REMARKS: (Casing, Water Loss, Etc.) Water Level Time Date

(Completion)

Layne-Western Company, Inc. 1010 WEST 39th STREET, KANSAS CITY, MISSOURI 64111

LW-59A

TEST BORING LOG

Project E. R. D. A. Boring No. 36 Sheet 2 of 3

Surface Elevation _____ Offset _____

Address _____ Date Started _____ Completed _____

City & State _____ Driller _____ Rig _____

Abbreviations: A.O. – Auger Only R.B. – Rock Bit C.W. – Core Water
H.A. – Hollow Auger S.S. – Split Spoon C.A. – Core Air
W.B. – Wash Bore S.T. – Shelby Tube F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETRO-METER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
81.6'	87.1'	CW6			5.5'	Gray sandstone, hard 11 pcs. 0.1 to 2.0
87.1'	90.0'	CW6			1.7'	Gray sandstone w/shale seams 6 pcs. .05 to 0.9
90.0'	93.0'	CW7			3.4'	Gray sandstone 10 pcs. 0.1-0.8
93.0'	95.1'	CW7			2.1	Same 7 pcs. 0.2 to 1.2
95.1'	99.8'	CW7			3.7'	Black shale, 6 pcs. 0.1 to 1.2
99.8'	100.0'	CW7			0.2'	Black coal, 1 piece
100.0'	100.4'	CW8			0.4'	Black coal, 1 piece
100.4'	101.5'	CW8			1.1'	Gray shale, med. hard broken to 0.2 4 pcs.
101.5'	104.1'	CW8			2.6'	Gray shale, hard 11 pcs. 0.1 to 0.7
104.1'	109.4'	CW8			5.3'	Black shale 13 pcs. 0.05 to 1.0
109.4'	110.0'	CW8			0.8'	Gray shale w/soft seams, hard 4 pcs. .05 to 0.3
110.0'	113.6'	CW9			3.2'	Same
113.6'	120.0'	CW9			6.4'	Dark gray shale, hard broken 14 pcs.
120.0'	130.0'	CW10			10.0'	Same 7 pcs. 0.2 to 3.0
130.0'	137.7'	CW11			7.7'	Same 11 pcs.
137.7'	138.7'	CW11			1.0'	Dark gray coal, broken 6 pcs.

REMARKS: (Casing, Water Loss, Etc.) Water Level Time Date

_____ _____ _____ _____ (Completion)

_____ _____ _____ _____

TEST BORING LOG

Project E. R. D. A. Boring No. 36 Sheet 3 of 3

Surface Elevation _____ Offset _____

Address _____ Date Started _____ Completed _____

City & State _____ Driller _____ Rig _____

Abbreviations: A.O. – Auger Only; H.A. – Hollow Auger; W.B. – Wash Bore; R.B. – Rock Bit; S.S. – Split Spoon; S.T. – Shelby Tube; C.W. – Core Water; C.A. – Core Air; F.B. – Finger Bit

DEPTH FROM	DEPTH TO	METHOD	PENETRATION RECORD: POCKET PENETROMETER	PENETRATION RECORD: NO. OF BLOWS	CORE RECOVERY	SAMPLE DESCRIPTION: COLOR–MATERIAL–MOISTURE–CLAY CONSISTENCY SAND DENSITY
138.7'	140.0'	CW12			1.3'	Gray shale, med. hard 8 pcs.
140.0 '	142.4'	CW13			2.4'	Same 13 pcs.
142.4'	142.6'	CW13			0.2'	Black coal, broken
142.6'	144.8'	CW13			2.2'	Dark gray shale, dry,hard 8 pcs.
144.8'	150.0'	CW13			4.4'	Gray & green limestone & shale w/chert 17 pcs.
150.0'	151.4'	CW14			1.4'	Same 4 pcs. 0.2 to 0.6
151.4'	160.0'	CW14			8.6'	Light gray limestone 9 pcs. 0.1 to 2.8
160.0'	Total depth					

REMARKS: (Casing, Water Loss, Etc.) Water Level Time Date

_____ _____ _____ _____ (Completion)

_____ _____ _____ _____

Layne-Western Company, Inc. 1010 WEST 39th STREET, KANSAS CITY, MISSOURI 64111

LW-59A

QUADRANGLE: Lamar North

ERDA Tar Sands Core No. 36
COUNTY: Barton

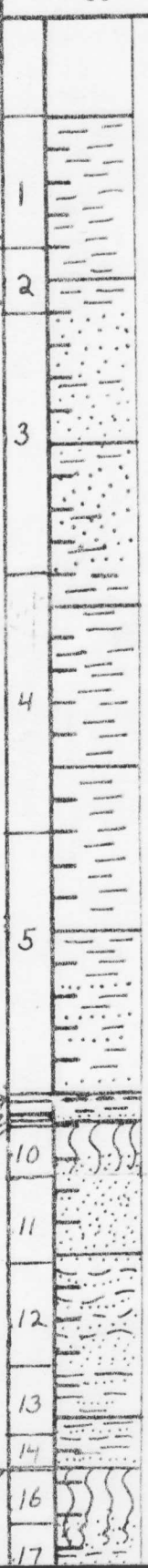
LOCATION: SE1/4 SE1/4 SW1/4 SEC. 8 T.33N. R.31W.
17 FSL; 2710 FEL

DATE: Spudded 9/27
Logged 10/10/7

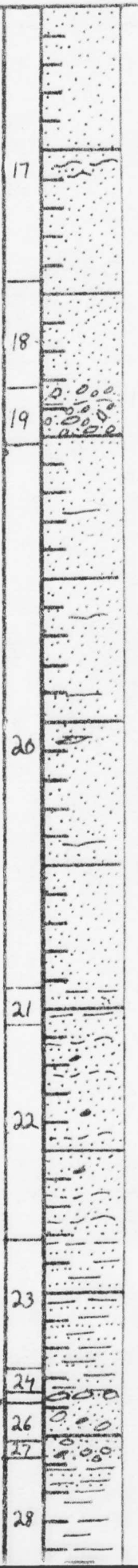
LOCATION DESCRIPTION: 7-1/2 miles north and 4-1/2 miles west of Lamar

Surface elevation 893.0 ft.

DEPTH FROM	DEPTH TO	BED NO.	LITHOLOGY
0.0	4.0	1	soil and clay, brown and yellow, sandy, silty
4.0	6.0	2	clay, lt. gray, soft slick
6.0	14.0	3	ss., yellow brown, fine-grained, numerous reddish brown clay seams
14.0	22.0	4	shale, med. gray soft, slick
22.0	30.0	5	shale, med. gray, firm, slick, carbonized plant remains few siltstone laminae below 26.0 ft.; rock chip samples to 30.0 ft.
30.0	30.2	6	shale, med. greenish gray, abundant sand sized siderite concretions weathered reddish brown, non calc.
30.2	30.8	7	shale, med. greenish gray, non calc.; few laminae of lt gray ss.
30.8	30.9	8	ss, lt. gray, distorted; thin laminae of coal
30.9	30.95	9	coal, thin bedded; dull with bright bands vitrain
30.95	32.7	10	underclay, greenish gray, carbonized roots; bottom .8 ft. sandy
32.7	35.3	11	ss., lt. gray, fine grained, argillaceous; abundant sand sized siderite concretions; bioturbite-like structures
35.3	38.5	12	ss., lt. gray, wavy, cross laminated ripples; intercalated with med. gray shale; predom. ss. in bottom half; pyritiferous and micaceous
38.5	40.7	13	ss; lt. gray, discontinuous laminae and pods intercalated with med. gray shale; plant leaves
40.7	41.6	14	shale, med. gray, sandy, distorted lt. gray ss. laminae in top .1 ft; bottom .4 ft. intercalated with lt. gray ss. lenses in about equal amounts, non calc.



41.6	41.7	15	coal, thin-bedded, pyritiferous, bright
41.7	43.3	16	underclay, greenish gray, micaceous, sandy, carbonized roots
43.3	54.5	17	ss., lt. gray, fine grained, carbonized root impressions in top 1 ft.; 20% of unit from 44.6-45.1 ft. is med. gray wavy shale laminae; slight asphaltic stain 48.4-48.6 ft.; 20% of unit is wavy greenish gray shale laminae from 50.6-51.2 ft.
54.5	58.2	18	ss., lt. gray; bits of coal, brown woody material and shale 54.5-55.6 ft., sharp scour surface at top; then black laminae composed of bits fusain at 56.5-56.6 ft. and 57.2-57.5 ft.
58.2	60.2	19	ss., lt gray; conglomeratic with flat shale clasts of med. gray shale to .02 ft. thick, oriented randomly; flame structures (med. to dk. gray clay in lt. gray ss.) med. gray slickensided shale bed 58.7-58.8 ft.
60.2	79.3	20	ss., lt. gray to med. gray; silt sized bits of black shiny coaly material; concentrated in places to form dk. gray horizontal laminae; few discont. laminae of pyritiferous coal; cross-bedded 70.5-70.6 ft; slightly coarser grained in bottom half
79.3	80.6	21	ss, lt gray, cross laminated ripples and pods interlaminated with med. to dk. gray shale in approx. equal amounts
80.6	88.1	22	ss., lt. gray, thin black wavy laminae consisting of bits coaly material and mica comprise approx. 20% of unit; few pieces of pyritized fusain to .05 ft. across
88.1	92.8	23	ss., lt. gray, cross-laminated ripples intercalated with med. gray shale in equal amounts; shale contains abundant bits of coaly material and mica
92.8	93.4	24	shale, med. gray; less than 5% lt. gray discont. ss. laminae
93.4	93.8	25	conglomerate, predominately flat clasts of tan woody material .01 ft. thick and .1 ft. long, imbricate structure; (some tan woody clasts with black coaly rinds)less than 10% lt. gray ss. matrix
93.8	95.2	26	ss., lt. gray , conglomeratic; approx. 10% clasts of tan woody material and inclined laminae of coaly material
95.2	95.8	27	conglomerate; clasts of tan woody material, randomly oriented, pieces coal or fusain, pyritized, also thin discont. stringers coal (coalified twigs of Calamites and ferns); approx. 50% of unit is lt. gray ss. matrix



			29 ↗
95.8	99.9	28	shale, black, non calc.; top 1 ft. interlaminated with lt. gray, cross laminated ripple ss.; grades downsection into shale at about middle of unit
99.9	100.3	29	coal, bright, pyrite in discont. laminae and disseminated form
100.3	101.9	30	underclay, med. to dk. greenish gray, slickensided; few root impressions at top
101.9	104.2	31	claystone, med. greenish gray, profuse sand sized siderite concretions dispersed throughout; pyritiferous
104.2	108.3	32	shale, black, non calc.
108.3	109.0	33	shale, black, calc., fossiliferous; Neospirifer?, productids, crinoid columnals, worm trails (fossils are lt. gray, recrystallized and dispersed throughout unit)
109.0	109.2	34	shale, black, non calc., pyritiferous; fills in vertical burrow or root holes in underlying unit to .2 ft.
109.2	110.5	35	underclay, med. greenish gray, carbonized roots, slickensided
110.5	114.8	36	claystone, med. greenish gray; few sand-sized siderite concretions and pyrite crystals; lost core 112.7-113.6 ft.
114.8	118.9	37	shale, black, non calc, brown clay ironstone band at 118.3-118.4
118.9	118.95	38	conglomerate, granule-sized clasts of coal, tan woody material, stringers coal, dk. gray clay; bright green sand sized clay mineral in matrix of lt. gray quartzose ss.
118.95	119.0	39	clay ironstone, tan; sharp wavy scour contact with overlying unit
119.05	137.7	40	shale, dk gray, non calc, approx. 5% lt. gray, discont. ss. laminae (starved ripples) dispersed throughout unit except from 119.05-119.2 and 130.0-132.0 ft. where approx. 20% of unit is lt. gray, cross laminated ss. and pods
137.7	138.7	41	coal, bright, pyritized stems; cleats filled with a white non calc. mineral (GYPSUM!)
138.7	139.1	42	shale, dk. gray, hard, non calc., pieces pyritized wood
139.1	141.4	43	underclay, med greenish gray, few carbonized roots, ferns
141.4	142.4	44	shale, med. greenish gray at top to dk. gray at bottom; sand-sized siderite concretions
142.4	144.5	45	shale, black, non calc.; 1 or 2% lenticular laminae and pods lt. gray ss. at bottom
144.5	144.8	46	breccia, lt. gray, angular clasts of chert to .05 ft. dia. comprise about 10% of unit "floating" in a black shale matrix
144.8	145.7	47	breccia, chert clasts granular size to .5 ft. comprise approx. 90% of unit; weathered with white rinds and tan interiors; molds of planispirally coiled gastropods; green clay matrix
145.7	151.4	48	breccia, chert clasts comprise approx. 10% of unit, white to muggy brown; matrix of green clay, slickensided, hard, top 1 ft. brown; lost core 148.8-149.6 ft.

151.4	160.0	49	ls, lt gray, oolitic (oolites in a sand-sized fossil hash, fenestellate bryozoans, brachiopods), stylolitic, thin dk. gray clay residue laminae along stylolites which contain abundant pyrite crystals

T. D. 160.0

Top Miss. 151.4